Scientific Foundation SPIROSKI, Skopje, Republic of Macedonia
Open Access Macedonian Journal of Medical Sciences. 2021 Nov 15; 9(E):1233-1237.
https://doi.org/10.3889/oamjms.2021.7395
eISSN: 1857-9655
Category: *E - Public Health*
Section: *Public Health Disease Control*

Comparative Study of Risk Profiles for Non-Communicable Diseases in Urban and Suburb Adolescents in Padang City (Indonesia)

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Edited by: Sasho Stoleski
Citation: Neherta M, Nurdin Y. Comparative Study of Risk Profiles for Non-Communicable Diseases in Urban and Suburb Adolescents in Padang City (Indonesia). Open Access Maced J Med Sci. 2021 Nov 15; 9(E):1233-1237. https://doi.org/10.3889/oamjms.2021.7395
Keywords: Lifestyle; Risk non-communicable disease; Adolescent
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Received: 10-Aug-2021
Revised: 10-Oct-2021
Accepted: 05-Nov-2021

Funding: This study was supported by the Chancellor of Andalas University, Head of LPPM Andalas University, and the Dean of the Faculty of Virginity
Competing Interest: The authors have declared that no competing interest exists

Abstract

BACKGROUND: Adolescence is when we still like to experiment and often develop bad habits which may lead to non-communicable diseases (NCDs) in the future.

AIM: This study aimed to understand the lifestyle at risk of NCDs in adolescents that live in the urban and rural areas of Padang city.

METHODS: This research method is comparative descriptive with a descriptive analytical approach, with a total sample of 788 people. The study was conducted from March 2019 to November 2019.

RESULTS: Based on the research, it was found that there was a risk behavior for non communicable diseases in adolescents. The data shows that about 57.77% of respondents in urban areas and 69.54% of respondents in rural areas like to eat junk food. 45.35% urban respondents and 60.21% rural respondents like to consume high-sweetened beverages. 73.4% of urban respondents and 7.6% of rural respondents like to smoke. About 80.6% of urban respondents and 87.8% of rural respondents lack physical activity. About 59.9% of urban respondents and 49.05% of rural respondents dislike exercising. About 67% of urban respondents and 80.2% of rural respondents sleep late at night.

CONCLUSIONS: The risk behavior of NCDs in rural adolescents is higher than in urban adolescents. It is recommended that parents, teachers, and health workers work together to carry out intervention activities for healthy lifestyles for all adolescents.

Introduction

Changes in diet and lifestyle among adolescents occurred in big cities, making them vulnerable to being the sufferer of non-communicable diseases (NCDs) in their future lives [1].

The increase in NCD prevalence is related to lifestyle [2], including smoking, consumption of alcoholic beverages [3], physical activity, and consumption of fruit and vegetables. Evidence based, since 2013, the prevalence of smoking in adolescents (aged 10–18 years) has continued to increase, namely, 7.2%, data on the proportion of alcoholic beverage consumption have also increased from 3% to 3.3%. Likewise, the proportion of less physical activity also increased from 26.1% to 33.5%. Another thing is that the proportion of less fruit and vegetable consumption in the population is still very problematic, which is 9.1% [4].

Materials and Methods

This research is a comparative descriptive study with a descriptive analytical approach conducted in Padang (West Sumatera Province) from March to November 2019, with a total sample of 788 people. The data were taken using a questionnaire to determine the lifestyle of adolescents. The data are processed with the help of computerization. This research has passed the ethical test on the Research Ethics Committee Team, Faculty of Medicine, Andalas University dated July 1, 2019, No; 199/KEP/FK/2019.

Results

Data collection was assisted directly by 20 enumerators who had been trained by the researchers 1 week before the study was conducted. Before taking the data, all respondents were asked for their consent by signing an informed consent form. Most of the respondents were 17 years old, and most of them were female.

From Table 1, it is known that:

1. The number of adolescents who have the habit of eating fast food types of sausages, pizzas, boiled noodles, fried noodles, French fries, and KFC/CFC in urban areas is 51.93%, while in

Table 1: Frequency distribution of food habits

Variable	Category	Urban area		Suburb area	
		f	%	f	%
Fast foods/junk foods	Never	189	48.07	135	34.28
	Often	205	51.93	259	65.72
High-fat foods	Never	210	53.37	176	44.76
	Often	184	46.63	219	55.24
Snacks	Never	172	43.65	96	24.7
	Often	222	53.35	298	75.3
Street fried foods	Never	109	27.55	65	16.25
	Often	285	72.45	330	83.75
Grilled foods	Never	152	38	131	30.8
	Often	242	62	263	69.2
MEAN	Never	166.4	42.23	120	30.46
	Often	227.6	57.77	274	69.54

the suburbs, it is 65.72%

2. The habit of eating high-fat foods such as meatballs, corned beef, and nuggets is admitted by 46.3% of respondents in urban areas, while in the suburbs is 55.24%
3. The number of respondents accustomed to eating snacks such as crackers, French fries, and chips is 53.7% in the urban areas, while in the suburbs is 75%
4. The habit of eating fried street food, such as fried tempeh, fried banana, bakwan (fried flour mix with vegetables), and fried tofu by respondents in urban areas, is 72.45%, while the respondents in the suburb areas are 83.75%
5. The habit of consuming roasted foods (roasted fish, roasted corn, and roasted chicken) in urban areas is 62%, while in the suburb areas is 69%.

From Table 2, it is known that: (1) The respondents who never eat vegetables in urban areas are 6.3%, while in the suburbs are 1.8%. (2) The respondents who never consume fruits in urban areas are 9.9%, while in the suburbs are 4.8%.

Table 2: Frequency distribution of vegetable and fruit eating habits

Variable	Category	Urban area		Suburb area	
		f	%	f	%
Eating vegetables	Never	25	6.3	7	1.8
	Often	369	92.7	387	98.3
Eating fruits	Never	39	9.9	19	4.8
	Often	355	90,1	375	95.2

From Table 3, it is known that respondents who used to drink high-sweetened beverages in the type of soft drinks (carbonated and non-carbonated), instant powder drinks, and instant brewed drinks in urban areas are 45.35%, while in the suburbs are 60.21%.

Table 3: Frequency distribution of drinks of respondents at risk for suffering from NCDs

Variable	Category	Urban area		Suburb area	
		f	%	f	%
Drink high-sweetened drinks	Never	215	54.65	157	39.79
	Often	179	45.35	237	60.21

NCDs: Non-communicable diseases.

1. In urban areas, respondents with smoking habits are 73.4%, while in the suburbs are 7.6%
2. In urban areas, respondents with a lack of physical activity as much as 80.6%, while in the suburbs, are 87.8%
3. In urban areas, respondents with a lack of physical exercise habits are as much as 59.9%. Meanwhile, the suburb respondents are 49.05%
4. About 67% of respondents in urban areas have the habit of sleeping late at night (later than 10 PM), while in the suburbs are 80.2%.

Discussion

This research was conducted in Padang (West Sumatera, Indonesia) from March to November 2019 (9 months). Respondents who participated in the study were adolescents (junior and high school students) who lived in the urban areas (394 people) and the suburbs area (394 people), so the total number of respondents was 788 people. Viewed from the gender characteristics, female is the majority of the respondents, both from the urban areas (59%) and suburbs areas (61.7%).

Afterward, when viewed from the age characteristics, the respondents from urban areas are mostly 14 years old (38.8%), and 29.2% are 17 years old. Respondents from the suburbs are predominantly 17 years old (35%), while 27.7% are 14 years old.

Adolescents lifestyle in urban and suburb of Padang.

Breakfast habits

From Table 2, the number of respondents who never eat breakfast is higher in the urban areas (7.4%) than respondents who are in the suburbs areas (6.3%). This study shows that there are a few respondents who do not eat breakfast. However, despite the small number, that they exist should raise a concern.

The benefit obtained from breakfast is that it lowers the risk of diabetes and heart disease. Breakfast can also make us more focused and productive in school because the stomach is full [5]. Not having breakfast makes it difficult for the body to meet daily needs for vitamins and nutrients. Research shows that people who eat breakfast are more likely to meet their overall nutritional needs for fiber, calcium, Vitamins A, B, and C, and other essential nutrients [6], [7].

Junk food eating habits

This study shows that both respondents in the urban and suburban areas consume a lot of junk food. Harmful substances mainly caused the destructive impact of junk food such as a wax coating in instant noodles [8]. Not only that, fast food contains

preservatives and various types of flavoring, such as MSG. If consumed too often will endanger health and cause various diseases, such as cancer, stroke, and kidney stones [9].

Habits of eating vegetables and fruits

Some respondents never eat vegetables and fruit. The lack of vegetables and fruit consumption is one cause of the increase in NCDs in Indonesia in recent years [10]. Fruits and vegetables contain Vitamins A, C, and E, folic acid, zinc, magnesium, potassium, and calcium that the body needs [11]. Then, fruits and vegetables contain antioxidants, fiber, and fluids. Fiber helps slow the absorption of sugar in the body. Fiber also regulates the sugar levels in the body, preventing excessive levels and maintaining them not to decrease drastically [12].

The habit of drinking sugary and high-sweetened drinks

From Table 4, in general, it can be seen that all respondents, both in the urban and suburban areas, consume a lot of high-sweetened beverages. Consumption of sweet drinks is very detrimental to the health of the human body [13], [14]. The harmful impact of high sweeteners is that they can gain weight and lead to obesity. A 20-year study of 120,000 men and women, published in the New England Journal of Medicine, found that people who increased their consumption of sugar-sweetened beverages to even one serving per day increased their risk of weight gain overtime [15]. Significant weight gain can be seen in 4 years after an individual increase their intake of sugary drinks [16]. Consuming too much sugar, one-fifth of the daily calories will be harmful to health, obesity, diabetes mellitus can occur and increase the risk of heart disease twice [17], [18].

Table 4: Frequency distribution of respondents' risk behavior for suffering from NCDs

Variable	Categories	Urban area		Suburb area	
		f	%	f	%
Smoking	Never	105	26.6	364	92.4
	Often	289	73.4	30	7.6
Lack of physical activity	No	76	19.4	49	12.2
	Yes	318	80.6	346	87.8
Physical exercise	Never	236	59.9	193	49.05
	Often	158	40.1	201	54.95
Sleep late	No risk of stress	130	33.0	78	19.8
	Risk of stress	264	67	316	80.2

NCDs: Non-communicable diseases.

Smoking habit

Smoking habits in respondents who are in the urban areas (73.4%) are higher than those in the suburbs. Cigarettes are undoubtfully dangerous. Sixty of the chemicals in cigarettes can cause cancer [19]. Some of the most hazardous materials in a cigarette are carbon monoxide, tar gas oxidant, and benzene [20]. In addition to the ingredients above, there are still many toxic chemical substances in a cigarette, such as arsenic (used in pesticides), formalin or formaldehyde (used to preserve corpses), hydrogen cyanide (used to make chemical weapons), ammonia [21], and other chemicals [22]. The content of all these chemicals can degrade the health of the brain, mouth, throat, lungs, stomach, bones, skin, and reproductive organs, and can lead to cardiovascular and psychological disorders [23].

Lack of physical activity and exercise habits

Lack of physical activity is a risk factor for chronic disease, and overall, can cause death [24]. Regular physical activities and exercises will provide good benefits for the body, such as improving reproduction, heart health, physical immunity, fitness, reducing the risk of cancer, and many other benefits [25], [26]. Physical activity can maintain the brain's blood level and increase the supply of nutrients to the brain. In addition, physical activity can also facilitate the metabolism of neurotransmitters, triggering changes in molecular and cellular activities that support and maintain brain plasticity [27].

Habit of sleeping late at night

Typically, adequate sleep time is between 7 and 8 h a day. Sleeping less than 6 h a day causes the body to release more stress hormones and cortisol. Cortisol in large quantities will result in collagen and protein substances breakdown in the skin [28]. Lack of sleep makes the body secrete less growth hormone, even though this hormone is needed at the time of growth. These hormones can help increase muscle mass, thicken skin, and strengthen bones [29]. Growth hormone is only produced during sleep in a calm, comfortable, and deep sleep. In addition to having an impact on physical health, lack of sleep also causes psychological disorders [30]. People with insomnia symptoms have a higher risk of hypertension [31]. In addition to hypertension, the dangers of sleeping late at night can also cause very deadly diseases, such as heart disease and stroke [32].

Conclusions and Suggestions

Respondents, both in the urban and in the suburbs of Padang, are at risk of suffering from NCDs. However, in general, the percentage of adolescents living in the suburbs is higher than in urban areas. It is recommended that local governments, especially health workers, intervene in health education on healthy lifestyles comprehensively to the community.

Acknowledgment

We would like to thank the Chancellor of Andalas University, Head of LPPM Andalas University, and the Dean of the Faculty of Virginity who have assisted, both morally and materially, for the implementation of this research.

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